Attorney Docket No. 23153.00

IN THE APPLICATION

OF

CYRIL WILLIAMS

FOR A

SNOW SHOVEL

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000

SNOW SHOVEL

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

The present invention relates to snow removal, and more particularly to a wheeled snow plow assembly having an adjustable handle and a mechanism for efficiently releasing the snow from a pivotally attached scoop.

2. DESCRIPTION OF THE RELATED ART

U.S. Patent Publication No. 2001/0029685, published October 2001, discloses a snow shovel which includes a handle mounted to an intermediate portion of a base of a mobile frame such that the handle can undergo pivotal movement between selected vertical angles relative to the base and a tool adjustably mounted to a front end of the base.

U.S. Patent Publication No. 2001/0045029, published November 2001, discloses a manually operated snowplow blade and an attachment apparatus to be secured to the front of a contractor's type wheelbarrow.

U.S. Patent Publication No. 2002/0047251, published April 2002, discloses a hand cart apparatus that will allow the user easy loading of bulky and heavy items into a wheeled bin by having an open end at or near load/ground height which aids in shoveling/scooping loads, transporting the loads contained in the

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000

bin, and then dumping, shovel or slide out the contents of the bin.

U.S. Patent No. 830,871, issued to R. Wilken in September 1906, discloses a snowplow having a blade pivotally supported at the forward end of a frame mounted on wheels and provided with handles by which the device is operated. The height of the blade is adjustable as well as the position of the blade relative to the line of travel of the machine.

U.S. Patent No. 4,224,751, issued to Schoemann et al. in September 1980, discloses a snow removal comprising a frame, a flexible scoop, and a mechanism for flexing and relaxing the scoop.

U.S. Patent No. 4,910,893, issued to Z. Asay in March 1990, discloses a wheeled chassis having a pair of wheels and a preferably V-shape handle, pivotally secured to a slide member mounted to the chassis. A variety of utility devices, such as a snow plow, scraper, weeder, etc., may be removably secured to the front of the chassis and provisions may be made to removably secure a variety of utility devices, such as a cultivator, rake, weeder, etc. behind the wheels.

Similar wheeled snow shoveling devices are disclosed in U.S. Patent No. 5,511,327 issued to Jurbowski et al. in April 1996 and U.S. Patent No. 5,581,915, issued to E. Lobato in December 1996.

Canadian Patent Application No. 2323917, published in April 2002, discloses an all season multi-purpose shovel and wheelbarrow combination. The device moves along the ground at

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000

varying heights scooping up any loose material to be shoveled and transported to another location. The container is attached to a wheeled frame, which is pushed by handles after being rotated to a horizontal position. Upon reaching a desired location the container can be dumped by the use of straps to rotate the container.

While many of the above devices disclose mechanisms for adjusting the height or angle of the snow scoop, they lack an efficient method of transporting the contents of the scoop to a different location and then releasing the contents of the scoop.

None of the above inventions and patents, taken either singly or in combination, is seen to describe the instant invention as claimed. Thus a snow shovel solving the aforementioned problems is desired.

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000

SUMMARY OF THE INVENTION

The snow shovel of the present invention is designed to scoop up a pile of snow easily and with minimal effort, to transport the contents to another location, and upon operation of a lever releases its load.

The handle of the snow shovel is telescoping, providing a number of uniformly spaced adjustable lengths. Furthermore, the handle is capable of pivoting about a vertical axis thereby providing a selection of lockable positions in order to provide the most leverage in operating the shovel.

A wheel assembly mounted to an intermediate portion of the frame supports the frame in an inclined position, allowing the user to concentrate on applying force in a forward direction rather than expending effort lifting the handle. The wheel assembly is pivotally mounted to the frame, allowing the wheel assembly to fold against the frame for storage when not in use.

The scoop portion is pivotally mounted to the lower end of the frame and upon activation of a release lever, the scoop head releases its load.

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. **1** is a perspective view of a snow shovel according to the present invention.

Fig. **2A** is an environmental side view of the snow shovel of Fig. **1** being used to load the scoop with a pile of snow.

Fig. **2B** is an environmental side view of the snow shovel of Figs. **1** and **2A** with the handle assembly rotated upward and the scoop elevated for wheeling the snow shovel to a new location.

Fig. **2C** is an environmental side view of the snow shovel of Figs. **1**, **2A**, and **2B** with the handle assembly rotated upward and the scoop in its released position.

Fig. **3** is a rear perspective view of the snow shovel according to the present invention.

Fig. **4A** is a perspective view of the handlebar angle adjusting assembly.

Fig. **4B** is an exploded, perspective view of the handlebar angle adjusting assembly of Fig. **4A**.

Fig. **5A** is a section view of the handlebar angle adjusting assembly illustrating the handle in a locked position with one set of pins engaging the rotating portion of the handlebar stem.

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000

Fig. **5B** is a section view of the handlebar angle adjusting assembly illustrating the handle angle adjusting pins pulled back in an unlocked position.

Fig. **6** is a fragmented, perspective view of the telescoping frame assembly, with the assembly broken away and partly in section, according to the present invention.

Fig. **7** is a perspective view of the snow scoop and its rear mounted mounting block of the snow shovel of the present invention.

Fig. **8A** is a perspective view of the scoop release assembly according to the present invention.

Fig. **8B** is an exploded perspective view of the scoop release assembly according to the present invention.

Fig. **9A** is a side elevation view of the scoop release assembly securing the scoop mounting block before release of the scoop according to the present invention.

Fig. **9B** is a side elevation view of the scoop release assembly after having allowed the scoop mounting block to rotate forward thereby emptying the scoop of its load.

Similar reference characters denote corresponding features consistently throughout the attached drawings.

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention is a snow shovel, designated generally as **100** in the drawings. As shown in Figs. **1-3**, snow shovel **100**, includes an elongated telescoping frame **102**, a handle assembly **104**, a scoop head **126**, and a wheel assembly **105**. The snow shovel **100** is designed to scoop up a load of snow or other material in the front containment section **134** of the scoop head **126** and deposit its load at a desired location.

The handle assembly **104** includes a transverse handle bar **106** having spaced apart handgrips **112** disposed on each end. A stem **108** depending from the center of the handle bar **106** is rotatably mounted to a handle pivoting assembly **110** disposed on the upper telescoping member **122** of the frame **102**. The pivot mechanism **110**, allows a user to adjust the angle of handle assembly **104**, thereby providing the user with the optimum height for operating the snow shovel **100**. A handle angle adjusting lever **114** is operative to allow the user to rotate the handle assembly **104** to one of several uniformly spaced positions, and is mounted on one end of handle bar **106**. The lever **114** is connected by means of a flexible cable **118** to the handle pivoting assembly **110**.

A wheel assembly **105** is mounted to an intermediate position on the lower portion **124** of the telescoping frame **102**. The wheel

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000

assembly **105** includes a pair of wheels **130** rotatably connected to a pair of struts **132**, each strut **132** pivotally connected to a support bracket **136**. In normal operation, the wheels **130** and struts **132** extend out from a position parallel to the frame **102** and by means of a locking pin (not shown) lock into a position normal to frame **102**. The wheels **130** may be folded back to the frame **102** for storage.

Fixedly mounted to the rear **140** of the scoop **126** is a mounting block **702** best seen in Fig. **7**. The scoop **126** is pivotally mounted to a scoop release assembly **128** mounted at the lower end of the telescoping frame member **124**. The scoop release assembly **128** is actuated by means of a flexible cable **120** interconnecting the release assembly **128** with scoop release lever **116** mounted on the handle bar **106**. Although the snow shovel **100** discloses a lever and cable actuated mechanism, the present invention is not limited to this embodiment, and may encompasses other release mechanisms known in the art.

As shown in Fig. **2A**, the scoop head **126** has a first position, in which the shovel **100**, moving in a forward direction, scoops up snow or other loose material within the forward facing containment section **134**. Fig. **2B** illustrates the snow shovel **100** being used to transit material between two locations. By exerting downward pressure on the handle grips **112**, a user

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000

elevates the scoop head **126** permitting the shovel **100** to roll on wheel assembly **105**. The handle assembly **104** is rotated upwards to provide the optimum height for operating the shovel **100**. Fig. **2C** illustrates the scoop head **126** having a second position, in which by activating release lever **116**, gravity causes scoop head **126** to pivot within release assembly **128**, thereby releasing its contents.

Fig. **3** shows a rear view of the snow shovel **100** and provides a good view of the scoop release assembly **128** disposed on the rear **140** of the scoop head **126**.

Figs. **4A** and **4B** illustrate the detailed operation of the handle pivoting assembly **110**, which as previously disclosed, allows the handle stem **108** to rotate about the cylindrically shaped upper end **404** of telescoping stem **122**.

Upper end **404** has bores **438** uniformly spaced in a circular pattern on its right side, and has an axle bore **436** cut through its center. End **404** is rotatably secured within the pivot assembly **110** by means of threaded axle pin **430**, the pin **430** having a shaft **431**, a head **433**, and a threaded end **432**, the shaft **431** having a diameter smaller than its head **433**. The threaded end **432** passes through an aperture **434** defined on the left side **402** of the pivot assembly **110**, through bore **436** in the stem end

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000

404 and is captured by a threaded recess defined on the right side 420 of the pivot assembly 110.

End 404 of upper telescoping stem 122 is held in a selected angular position by means of four retractable pins 422, which are received by four of the eight bores 438 previously disclosed. A coil spring 428, encompassing each pin 422, provides a horizontal biasing force seating one end of the pin 422 within the bore 438. The other end 424 of the pin passes through an aperture 418 cut in the right wall 420 of the pivot assembly 110. Connected to the end 424 of each pin is a wire 408 extending from the end 416 of flexible cable 118 which threadedly received by aperture 414 in support guide 410. Support guide 410 secures the sheath of cable 118 while allowing the wire 408 to move freely within the sheath and support guide 410.

Figs. 5A shows a cutaway view of pivot assembly 110, in which each of a pair of retractable pins 422 engage an aligned bore 438 in upper frame end 404. Pressure applied to the handle angle adjustment lever 114 applies tension on wires 408, and as shown in Fig. 5B, causes each pin 422 to retract within a recess 502, allowing the handle assembly 104 to rotate within the pivot assembly 110.

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000

As previously disclosed, the telescoping elongated frame **102** allows a user to adjust the length of the frame **102** to increase the mechanical advantage of the snow shovel **100**. As shown in Fig. **6**, a hollow lower frame member **124** receives upper frame member **122**, and is secured in place by pin **602**, which passes through a pair of apertures **604** cut in the lower frame member **124** and is adapted to engage a pair of inline apertures **606a**, **606b** cut in upper frame member **122**. Several pairs of apertures **606a**, **606b** are uniformly spaced approximately two inches apart in upper frame member **122** and allow the length of the telescoping frame to be adjusted by the user.

As shown in Fig. **7**, a mounting block **702** is disposed on the rear surface **140** of scoop head **126**. The mounting block **702** has a pair of apertures **704** cut in the lower portion of the block **702** and has a retaining lip **706** disposed on the upper rear portion of the block **702**. As best seen in Fig. **9A**, the scoop mounting block **702** is pivotally mounted to the scoop release assembly **128**, and is held in place by slideably latch **818**.

Figs. **8A-8B** illustrate the release assembly **128** fixedly attached to the lower end of frame member **124**, and discloses a housing having two lateral support walls **806**, **807** joined together by a transverse cross member **808**. An aperture **822** disposed on

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000

one side support wall **806** and a threaded bore **823** on the second wall **807** captures pin **804** which is adapted to pass through and pivotally secure scoop mounting block **702** within the scoop release assembly **128**. The wedge shaped slidable latch **818** is approximately two inches wide, and is slidably received by a pair of guide channels **820** recessed in side support walls **806, 807**. The lower portion of the latch **818** has a lateral abutment surface **838** and a lower angled abutment surface **840**. The latch **818** has a plunger **814** extending up from the center of the latch **818,** the plunger **814** passing through an aperture **830** cut through cross member **808**.

As best shown in Figs. **9A** and **9B**, a coil spring **824,** encircling plunger **814** is captured between the seat **836** of bore **834** and the upper surface of the latch **818**. When the shovel **100** is directed in a forward direction, spring **824** biases and retains the latch **818** in a first ``latched'' position, the lateral surface **838** of latch **818** abutting the lateral surface **914** of retaining lip **706**.

An ``L'' shaped lever **810** is pivotally mounted to the cross member **808** by lever bracket **812**, one end of the lever **810** passing through an aperture **816** cut through the top of the plunger **814**. The other end of the lever **810** is connected to a flexible wire

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000

826 extending from the lower end of flexible cable 120, which in turn is connected to the scoop release lever 116.

As shown in Fig. 9B, lever bracket 812 acts as a fulcrum for lever 810. When tension is applied to the wire 826, latch 818 is pulled upward against the force of spring 824, disengaging the latch 818 from the lip 706, thereby allowing the mounting block 702 and attached scoop 126 to rotate about pin 804 to a second or ``unlatched'' position.

Upon the release of scoop release lever 116, the spring 824 applies biasing force against the latch 818, forcing the latch 818 downward towards its ``latched'' position. The arcuate abutment surface 910 is adapted to engage the angled abutment surface 840 of latch 818, slidably displacing latch 818 until the scoop 126 has attained it ``latched'' position, at which point the latch 818 slides downward locking the scoop 126 in place.

It is to be understood that the present invention is not limited to the embodiment described above, but encompasses any and all embodiments within the scope of the following claims.

LITMAN LAW
OFFICES, LTD.
P.O. BOX 15035
ARLINGTON, VA 22215
(703) 486-1000